

REMARKS**I. Status of the Claims**

Claims 1-22, 35 and 40-48 are currently pending for examination, with claims 1, 12, 35, 40 and 41 being independent claims. Each of claims 1-9, 12-22, 35 and 40-48 has been amended herein, without prejudice or disclaimer. No new matter has been presented.

II. The Claims are Patentable over Heine and Zha

Claims 1-6, 8-17, 19-22, 35 and 40-42 were rejected under § 102(b) in view of Heine et al. (US 6,126,819) (hereinafter "Heine"). Applicants respectfully disagree with this ground for rejection.

Heine generally discloses a membrane separation apparatus for liquid treatment, particularly of waste waters. FIG. 7, highlighted in the Office Action, presents one embodiment in which medium 11 is introduced into central passage 250 to be separated. Thus, central passage 250 is simply a feed inlet for the separation apparatus. Heine does not produce a two-phase fluid for distribution to the membranes.

In contrast to amended independent claims 1 and 12, Heine fails to disclose a gas inlet in addition to a liquid inlet. Heine also does not disclose a chamber configured to mix gas and liquid to produce a fluid and further configured to distribute the fluid to distribution apertures in a header. No mixing of supplied liquid and gas occurs in central passage 250. Similarly, with respect to amended independent claim 35, Heine fails to disclose an open-ended mixing chamber for mixing together liquid and gas bubbles to provide a cleaning mixture. Likewise, with respect to amended independent claims 40 and 41, Heine fails to disclose an open-ended mixing chamber connected or open to a source of gas and liquid. As discussed above, Heine supplies liquid feed but no gas to the central passage 250 and therefore does not anticipate any of the pending independent claims.

Claims 1-22, 35 and 40-48 were rejected under § 102(b) in view of Zha et al. (US 2001/0047962). Applicants respectfully disagree with this ground for rejection.

Zha generally discloses a method of cleaning a membrane module in which gas bubbles are forcibly entrained in a liquid stream via a venturi type device, jet, nozzle, ejector, eductor, injector or the like. FIG. 9, highlighted in the Office Action, presents one embodiment in which

a gas or a mixture of liquid and gas is injected into cavity 55 by jet assembly 57 before passing through holes 52 into the membrane array.

In contrast to amended independent claims 1 and 12, Zha does not disclose a chamber comprising one open end fluidly connected to gas and liquid inlets, and another end in fluid communication with distribution apertures, said chamber configured to mix gas and liquid to produce a fluid and further configured to distribute said fluid to said distribution apertures. Similarly, with respect to amended independent claim 35, Zha fails to disclose an open-ended mixing chamber for mixing together liquid and gas bubbles to provide a cleaning mixture. Likewise, with respect to amended independent claims 40 and 41, Zha fails to disclose an open-ended mixing chamber connected or open to a source of gas and liquid. The venturi device of Zha is not an open-ended chamber as defined by Applicants' specification and therefore Zha does not anticipate any of the pending independent claims.

Claims 1-22, 35 and 40-48 were rejected under § 103(a) over Heine and/or Zha and further in view of Henshaw (US 5,783,083). Applicants respectfully disagree with this ground for rejection.

Henshaw fails to cure the deficiencies identified above with respect to both Heine and Zha. Henshaw does not disclose an open-ended chamber for mixing gas and liquid to form a cleaning fluid. Thus, each of claims 1-22, 35 and 40-48 is patentable over the cited combination.

Accordingly, reconsideration and withdrawal of the rejections in view of both Heine and Zha is respectfully requested.

III. Provisional Double Patenting Rejection

Claims 1-22, 35 and 40-48 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over the claims in co-pending Application No. 11/025,418. Applicants respectfully disagree that any of claims 1-22, 35 and 40-48 of the instant application should be rejected on the ground of obviousness-type double patenting. Notwithstanding this traversal, Applicants will submit a terminal disclaimer with respect to co-pending Application No. 11/025,418 once the instant claims are deemed allowable.

IV. Conclusion

Applicants respectfully request reconsideration of the claims in view of the foregoing amendments and remarks. The application as presented is in condition for allowance. An early and favorable action is respectfully requested. If the Examiner believes, after this Response, that the application is not in condition for allowance, the Examiner is invited to call Applicants' representative at the telephone number listed below.

If this Response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee that is not covered by an enclosed payment, please charge any deficiency to Deposit Account No. 50/2762 (Ref. No. M2019-7027US).

Respectfully submitted,
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